

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**SUPPLEMENTAL SPECIFICATION**

**Section 854—Castings and Forgings**

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*Delete Section 854 and substitute the following:*

**854.1 General Description**

This section includes the requirements for the following castings and forgings:

- Gray iron drainage castings
- Cast aluminum alloy railing posts
- Aluminum alloy sand mold castings
- Steel castings
- Steel forgings
- Cold-finished carbon shafting
- Steel castings for bridges

**854.1.01 Related References**

**A. Standard Specifications**

[Section 501—Steel Structures](#)

**B. Referenced Documents**

AASHTO	ASTM
M 102/ M 102M	ASTM A 27/ A 27M
M 169	ASTM B 26/ B 26 M, Alloy UNS A03560
M 306	ASTM B 108

[QPL 11](#)

ANSI 356 Temper T 6

**854.2 Materials**

**854.2.01 Gray Iron Drainage Castings**

**A. Requirements**

Each foundry shall conform to Standard Operating Procedure 18 (SOP 18), “Inspection of Gray Iron Drainage Castings”.

1. Type

Use gray iron drainage castings that meet the requirements of AASHTO M 306, Class 35B.

Use foundries listed on [QPL 11](#).

**B. Fabrication**

General Provisions 101 through 150.

### **C. Acceptance**

The Department will accept the castings based on the following:

- Quality of work and conformance to dimension and shape requirements, including acceptable proof load tests and drawings on file with the Office of Materials and Research-Inspection Services Branch for each casting design supplied.
- Tension bar test results

### **D. Materials Warranty**

General Provisions 101 through 150.

## **854.2.02 Cast Aluminum Alloy Railing Posts**

### **A. Requirements**

#### **1. Type**

Use permanent mold types of cast-aluminum alloy roadway railing post that meet ASTM B 108 requirements.

Ensure that the finish on the castings meets the specifications on the Plans.

#### **2. Certification**

Submit a report with each shipment of castings that includes test results and certifies compliance with this Specification.

### **B. Fabrication**

General Provisions 101 through 150.

### **C. Acceptance**

The Department will accept the castings based on the following:

- Quality of work and conformance to dimension and shape requirements
- Certification that the physical and chemical properties of the material meet these Specifications

### **D. Materials Warranty**

General Provisions 101 through 150.

## **854.2.03 Aluminum Alloy Sand Mold Castings**

### **A. Requirements**

#### **1. Type**

Use aluminum base alloy and castings that meet the requirements of ASTM B 26/ B 26M, Alloy UNS A03560 or ANSI 356 Temper T 6.

#### **2. Certification**

Submit a report with each shipment of castings that includes test results and certifies compliance with this Specification.

### **B. Fabrication**

Sandblast or otherwise clean the scale and sand off the castings to produce a smooth and uniform surface.

### **C. Acceptance**

The Department will accept the castings based on the following:

- Quality of work and conformance to the dimension and shape requirements, as inspected when received
- Certification that the physical and chemical properties of the material meet these Specifications

### **D. Materials Warranty**

General Provisions 101 through 150.

## **854.2.04 Steel Castings**

### **A. Requirements**

#### **1. Type**

Use carbon steel castings that meet the requirements of ASTM A 27/ A 27M, Grade 65-35 (450-240). Ensure that the form and dimensions of the steel castings are true to pattern.

2. Certification

Submit a report with each castings shipment that includes test results and certifies compliance with this Specification.

**B. Fabrication**

1. If the Plans require large castings, suspend and hammer them all over. Ensure that no cracks, flaws, or other defects appear after this treatment. The Department will not accept sharp unfilleted angles or corners.
2. Coat surfaces marked "Finished" as soon as practical after finishing with a corrosion-resistant grease before removing them from the shop.
3. Apply a shop coat of paint to casting surfaces milled for removing scale, scabs, fins, blisters, or other surface deformations. Ensure that the shop coat of paint meets the requirements of [Subsection 501.3.04.D.10, "Shop Painting."](#)

**C. Acceptance**

The Department will accept the castings based on the following:

- Quality of work and conformance to the dimension and shape requirements, as inspected when received
- Certification that the physical and chemical properties of the material meet these Specifications

**D. Materials Warranty**

General Provisions 101 through 150.

**854.2.05 Steel Forgings**

**A. Requirements**

1. Type  
Use steel forgings that meet the requirements of AASHTO M 102/M 102M for the class shown on the Plans.
2. Certifications
  - a. Submit a record to the Engineer of the annealing charges that show the forgings in each charge, the melt or melts from which they were secured, and the treatment they received.
  - a. Submit a report with each castings shipment that includes test results and certifies compliance with this Specification.

**B. Fabrication**

General Provisions 101 through 150.

**C. Acceptance**

The Department will accept the castings based on the following:

1. Quality of work and conformance to the dimension and shape requirements, as inspected when received
2. Certification that the physical and chemical properties of the material meet these Specifications

**D. Materials Warranty**

General Provisions 101 through 150.

**854.2.06 Cold-finished Carbon Shafting**

**A. Requirements**

1. Type  
Use cold-finished carbon steel bars that meet the requirements of AASHTO M 169 for the grade shown on Plans.
2. Certification  
Submit a certification to the Engineer that shows the chemical properties of the material and conformance to the Specifications.

**B. Fabrication**

General Provisions 101 through 150.

**C. Acceptance**

The Department will accept the material based on favorable review of the certification.

**D. Materials Warranty**

General Provisions 101 through 150.

**854.2.07 Steel Castings for Bridges**

**A. Requirements**

1. Type

Use steel castings for bridge components that meet the requirements of ASTM A 27/ A 27M for the class shown on the Plans.

2. Certification

Submit a certification to the Engineer that shows the physical and chemical properties of the material and conformance to the Specifications.

**B. Fabrication**

General Provisions 101 through 150.

**C. Acceptance**

The Department will accept the material based on favorable review of the certification.

**D. Materials Warranty**

General Provisions 101 through 150.